

The screw propeller is clearly an important novelty; shall we call it, in naval tactics. That the propriety of the term novelty is here even more than doubtful will appear from the fact, recorded by Mr. Bourne, that one of the earliest screw propellers in this country was almost a copy of an ancient Chinese invention for the very same purpose, namely, the propulsion of ships or vessels. The merely imitative, and by no means inventive Chinese, are, indeed, a people of mysterious origin. The next naval "novelty" we mean to rob them of is probably those Venetian-blind-shaped sails which Mr. Bourne also adduces, not only as a Chinese invention, but as the best possible form of sail for preventing that rebound, or reflex action, of the wind; which, after impinging on the sail, interferes with the force of that about to strike it. By means of these blind-shaped sails, the wind, so soon as it has struck, escapes through the interspaces, and so avoids interference with the advent of that which follows. But our present purpose is simply to notice Mr. Bourne's valuable work on screw propellers, in which the author gives a comprehensive history of their successive improvements, profusely illustrated by engravings of the forms of most of those patented, not only from their first practical adoption in this country, but long previous to that time; the author, in fact, tracing out the screw from its Archimedean forms and purposes, through Hooke's windmill and other modifications of it, end of the seventeenth century, and Lytleton's adoption of it as an "aquatic propeller" used by the Chinese.

It is to a farmer, however, at Hendon, Mr. F. B. Smith, and to Captain Ericsson, a Swede, but long resident in England before he went to America, that the British public are indebted for the practical adoption of the screw propeller here as a mover of ships. The first experiments were made about the year 1836. In 1838 the Admiralty had their eye on it, and in 1840-41 they had determined on its adoption in the navy. This result was mainly attributable to Mr. Smith's persevering efforts; but Captain Ericsson's experiments had been probably equally successful, only he was induced to quit the country in disgust, in consequence of the Admiralty surveyor prejudicing their lordships in the outset against screw propelling altogether, as disabling the power of steering, a conclusion come to without either trial or intimation, but finally disproved to their lordships' satisfaction by Mr. Smith.

Into the subsequent history of the screw we cannot here enter. One of its main improvements we may, however, remark, arose from an accident. The screw was originally twice, at least, as large as it now usually is, and during one of Mr. Smith's experiments the blades were broken by accident through the middle, when immediately the vessel propelled by them went a-head, and, if we recollect aright, almost doubled her previous speed.

Mr. Bourne suggests the combination of the stern screw with some form of the side paddle (in fine analogy to the fish form and power), as an improvement that would enable ships to head the wind more powerfully than they yet do; and he points out what seems to us a most important principle of strength in ship-building, namely, that a ship ought to be regarded as a hollow beam, of which the deck is the upper side, and the bottom the lower; so that it is the deck and bottom, and not the sides, which have to endure the strain; and, indeed, might we not venture to suggest that the strongest of all ships would be those built on the principle of a T girder, with a division for strength along the length of the bold at midships? In Mr. Bourne's view the function of the sides is merely to keep the top and bottom in their right positions, and it is therefore in the top and bottom that the strength should be collected, thus giving more strength with less weight.

The wonder is, as remarked by the author, how it can have happened that ships, with the accumulated skill of a thousand generations expended on them, could continue to be constructed in so unskilful a manner as they still are,—weakest in place of strongest in the

direction of their length, and liable to bend in the middle, or to hog, as it is technically termed; or even to break in two, or "break their back," as the President iron steamer, by the way, is believed to have done. We have confidence enough in the correctness of ancient principles, however, to believe that it will yet be discovered that modern ship-builders have departed from the right principle rather than not yet arrived at it, and that the Chinese in their clumsy junks, or in some other stereotyped examples of the science of antiquity, will yet be found even still to build upon the more correct principles enunciated by Mr. Bourne.

Before closing his very interesting work,—which, by the way, contains many carefully-engraved plates of marine engines, such as those of her Majesty's yacht, the *Fairy*, screw steam-yacht, the *Fire Queen*, &c. &c. and a comparative view of various engines, side by side, on one large plate,—we may here remark, that the author, by anticipation, replies so far to a question recently started in the *Times*, as to size of ships. "Large vessels of good form," he says, "will be able to carry merchandise more cheaply than small vessels, and they will also be able to realize a higher speed. To realize the same speed under steam alone, a vessel of eight times the capacity will only require twice the power, and the sails of the larger vessel will be much more effective, since, in fact, a larger amount of sail-power relatively with the resistance, will be applied."

We intended to say something of Mr. Ferguson's new volume, "The Peril of Portsmouth" (a cognate subject), but are forced to retain it for the new year.

#### LECTURES ON ARCHITECTURE.

THREE weeks ago, Mr. Huggins, known to our readers, delivered a lecture on Architecture and the Fine Arts at Avenham, wherein he took a philosophic view of the rise and decline of styles. About the same time Mr. Godwin gave a general view of the history of the art, a flight through the Realms of Architecture, to the members of the Royal Institution in Bristol. A week afterwards a lecture was delivered at Shaftesbury on "The Social Influence of True Architecture," by Mr. J. Soppiu. On the question of progress, he said, "Although he had on past occasions added his weak but bitter cry against copyism to the more powerful denunciations of better men, he began to think the case not so bad as it might appear. Architecture in this country had to deal with the whole character of a nation, embodying the strange diversity of elements proper to a high but still progressive state of civilization, and it was not the energy of a few individuals, nor the lapse of a few years, that could effect any radical reform. Like the numerical changes evolved by Babbage's calculating machine, we saw illustrated in the pages of history the successive stages of human progress: the dark ages of conflict, or of doubt, or of apparent stagnation, were but progress in another shape—the continued and mysterious working out of the problem of humanity." He was satisfied that the late and still existing rage for copyism (which had nothing in common with the anti-progressive tendencies of ancient Egyptian and modern Chinese architecture) would ultimately be viewed as a new phase in architectural progress.

#### THE NEW NATIONAL GALLERY, &c.

ART must be in a precious state if it be true that the public of this country will only visit the National Gallery as long as it is in their way, and will only attend it as a matter of convenience. The public buildings of England have long been a job and opprobrium. Now is the time to make an effort to redeem our character in the eyes of the world. We have both the means and the taste, if properly developed. But what can her Majesty's subjects do when they find their money squandered to no purpose, the treasures of art they possess (few and far between) located in cellars, and the trustees (Heaven save the mark!) allowing the opportunity to slip through their hands of acquiring noble works, to end in

purchasing a doubtful "Titian." The public want proper accommodation and return for their money. Let us have, under one roof, apartments containing all that is conducive to the study of art, not forgetting mediæval subjects and architectural models. Some of the most celebrated "salles" in the various noted edifices should be copied and adapted, thus combining two purposes, and decorated with the most famed frescoes, copied by artists adequate to the task. I reiterate, the public will not grudge the supplies, if properly expended, nor will they hesitate to go so far as keeping-ton if their journey is made worth the trouble! Just plant the Louvre on the site proposed for the new National Galleries, and the trustees and Lord Seymour would soon have "confirmation true as holy writ" that John Bull has some "penetrable stuff" in him yet. Mr. Drummond asks, "Where are we to find an architect?" and he has good reasons to do so, after the specimens our great metropolis possesses. With regard to improvements going on in Paris, I may state that, *pari passu* with the alterations and additions at the Louvre, the restoration of Notre Dame is being rapidly progressed. A very novel and useful adaptation of the Daguerreotype is applied there, namely, in taking impressions by the process, from time to time, of the progress made, and exhibiting them to the public at large. I think Mr. Hume might urge the adoption of this hint on this side of the Channel to some purpose.

G. R. A.

#### Notices of Books.

*The Elements of Land Valuation.* By JOHN LANKTREE, Land Agent. London: Orr and Co.; Dublin: McGlashan, 1853.

"It would be difficult," says Mr. Lanktree, "to overrate the importance to Ireland of having its land valuations properly executed. The island contains in all 20,808,271 statute acres, and the whole of this, with the exception of 650,000 acres, now covered with water, or occupied as towns, is in the hands of the farming population." The book before us is an important step towards obtaining this proper valuation, and will, we hope, receive the attention it deserves in the country for which it is more particularly intended. The author is of opinion that the "Poor Law Valuation of Ireland" is a work of no authority.

There are large fortunes to be made in Ireland. We agree with Mr. J. Locke's remark in a paper on "The Valuation and Purchase of Land in Ireland," recently read at the Statistical Society:—"History has afforded no parallel instance of so extensive a field for investment in land, combined with such facilities for its acquisition, as is now presented within a few hours' distance of the wealthiest country in the world."

*The Millwright and Engineer's Pocket Companion.* By W. TEMPLETON. London: Simpkin and Marshall, 1852.

THE ninth edition of this, which has now become a standard work, has been edited and corrected by Mr. S. Maynard, the editor of "Keith's and Bonnycastle's Works," and will be found of great use by those for whom it is designed. It has an important body of tables, including one of "Useful numbers often required in calculations, together with their logarithms," by the present editor.

*A Naval and Military Technical Dictionary of the French Language, in two Parts: French and English and English and French.* By LEUT.-COLONEL BURN. London: Murray, 1852.

THE first edition of Colonel Burn's work, published ten years ago, contained only one part, French and English, and was strictly professional. The present view of the education required for the Services has led the author to add the English and French part, and to enlarge the scope of the whole, so as to make it of value to men of peace as well as men of war. The pains taken with it may be exemplified by the article "l'apérçu," in the French part, and "Steam," in the English: